

ABSTRACT

A hydrogen permeation membrane that selectively allows the passage of hydrogen and that can be formed in a desired shape is obtained by using a silicon resin that includes at least phenylheptamethylcyclotetrasiloxane and/or 2, 6-cis-diphenylhexamethylcyclotetrasiloxane. A heat-resistant coating that is resistance to temperature of 300°C or higher is obtained in a sintering process at temperature of 200°C to 500°C, thereby providing a hydrogen or helium permeation membrane that has excellent water resistance. Similarly, a hydrogen or helium storage membrane that selectively stores hydrogen and that can be formed in a desired shape can be formed by using a silicon resin that includes at least phenylheptamethylcyclotetrasiloxane and/or 2, 6-cis-diphenylhexamethylcyclotetrasiloxane. A heat-resistant coating that is resistance to temperature of 300°C or higher is obtained in a sintering process at temperature of 200°C to 500°C, thereby providing a hydrogen or helium storage membrane that has excellent water resistance.